

For *B. prasinana* L. read *Pseudoips fagana britannica* Warren.

I am indebted to E. C. Pelham-Clinton for confirming the identities of most of the above species, and to I. C. Christie for advice and encouragement. J. C. A. CRAIK, Marine Laboratory, P. O. Box 3, Oban, Argyll.

TEMPERATURES ASSOCIATED WITH THE BLUE BUTTERFLY AT MALVERN IN JANUARY 1983. — Further to the mention by Dr. C. J. Luckens in *Ent. Rec.* **96**: 237-242, the blue butterfly was disturbed from a pile of logs by a Mrs. K. Edwards on January 8th. The logs were near to mature holly trees, and with plenty of ivy in the area it seemed probable that it was *C. argiolus* Linn, a holly blue. Observations since support this assumption because this species is often plentiful there, eg. the second brood in 1984.

Through the kindness of Mr. Frank Hill of the Meteorological Office Radar Research Station at Malvern, I receive detailed information of local climatic conditions, therefore I have been able to study daily records for the period before the sighting. Mr. Hill considers that the location of Mrs. Edwards' garden is such that temperatures there should be similar to those at the recording site which is about 1½ miles away. The records show that maximum shade temperatures reached 59°F on December 15th, 54° on the 19th, and there was a warm period over Christmas from 24th to 27th. Then there was a most exceptional warm period in early January when temperatures reached levels normally associated with late April, as follows:—

Date January 1983	1	2	3	4	5	6	7
24 Hr maximum °C	10.2	11.8	12.2	13.9	14.4	11.7	7.8
minimum °C	7.0	4.5	6.0	8.8	6.4	11.1	4.0
Long term averages for early January:—					day maximum	6.5°C	
					night minimum	2.1°C	

Maximum temperatures far exceeded the normal maximum, reaching a record 14.4°C (58°F approx) on the 5th. Furthermore on three nights even the lowest temperature exceeded the normal maximum daily temperature for early January. Understandably these high temperatures coincided with a low pressure period and there was much cloud and rain, however there were some periods of sunshine, notably three hours on the 5th.

Mr. Hill also analysed local records from 1955 to 1985 for the first 7 days of January, and found that 1983 was the warmest on all three criteria of highest maximum, highest mean and highest minimum. Interestingly, a rank order plot showed that the next warmest years were 1975 and 1976; also 1979 and 1963 were the coldest.

The studies by H. C. Gunton over the period 1919 to 1937 provided a reference work on the factors influencing emergence dates for macrolepidoptera. (Gunton, H. C. 1938. *Nature Study Above and Below the Surface*. London. Publisher H. S. & G. Witherby.) One of his conclusions was:— “— From a careful examination of the records of different years it appears that while, in the absence of exceptional drought, excess temperature is the principal factor in producing earliness, the maximum degree of earliness is often found to occur during a warm period which coincides with, or follows shortly after, a wet period.” Another was:— “--Early emergences depend on the occurrence of a warm period within a certain time distance in advance of the normal date for appearance.” *Argiolus* was one of 50 species he studied and his normal date was 30th. April; his earliest date was 2nd. April, but “time distance” was not quantified. Perhaps a month or 5 weeks would seem appropriate? (I once saw *argiolus* at Malvern in late March).

Thus the ‘Malvern blue’ in January 1983 conformed with Gunton’s deductions apart perhaps from the extreme earliness. However, since a holly blue of a third brood is occasionally seen in a warm October — which would normally remain in the pupa state until the following spring — it is foreseeable that a most exceptional warm period during the winter months might stimulate emergence. I should be interested to learn of any records for the months November — February, in order to further study the meteorological factor.

My grateful thanks to Mr. Frank Hill for his invaluable help, without which this analysis could not have been made. — J. E. GREEN, 25 Knoll Lane, Poolbrook, Malvern, Worcs, WR14 3JU.

VANESSA CARDUI L. AND HYLES LIVORNICA ESP. IN NORTH AFRICA, APRIL 1985 — Further to the article by P. A. Davey (*Ent. Rec.* 97: 165-167) on the immigration of the above species in 1985, the following observations may be of some interest : I was on holiday in Morocco from 4th to 18th April, first in Marrakesh and then Agadir. Both *cardui* and *livornica* were extremely common. On April 5th, and for a few subsequent days, I noted at Marrakesh “. . . clouds and clouds of *cardui* on the waste ground near my hotel . . .” They appeared to be flying S. W., and maintained this movement for several days. The painted lady was also common in Agadir a few days later, but here *livornica* was the dominant species, swarming over flowers in the hotel gardens on 15th April. I noted “. . . lots of striped hawks washed up in the surf on the beach . . .”, and the moth was also abundant around the light outside my room. It is probable that these insects were part of the migration that eventually reached the U. K. D. HALL, Lichfield School, The Palace, Lichfield, Staffs.